

## **Amendments to the Claims**

This listing of claims will replace all prior versions and listings of claims in the application:

### **Listing of Claims:**

1-28. (Canceled)

29. (Currently Amended) A method of transducing a conformational change in a signaling aptamer upon binding a ligand to an optical signal, the method comprising:

- (a) providing a signaling aptamer comprising a reporter molecule covalently coupled to an aptamer, wherein in ~~the~~an unbound state an optical signal produced by the reporter molecule is quenched by the aptamer's conformation relative to the optical signal produced by the reporter molecule when the aptamer undergoes a conformational change upon binding to its ligand;
- (b) contacting the signaling aptamer with the ligand under conditions whereby the signaling aptamer binds the ligand; and
- (c) detecting the ~~differential~~ optical signal produced by the reporter molecule as a result of the conformational change to the signaling aptamer upon binding the ligand.

30. (Previously Presented) The method of claim 29, further comprising the step of quantitating the amount of ligand bound to the signaling aptamer.

31. (Previously Presented) The method of claim 29, wherein the optical signal is selected from the group consisting of fluorescence, colorimetric intensity, anisotropy, polarization, lifetime, emission wavelength, and excitation wavelength.

32. (Previously Presented) The method of claim 29, wherein the covalent coupling of the reporter molecule to the signaling aptamer occurs during chemical synthesis, during transcription, or post-transcriptionally.

33. (Previously Presented) The method of claim 29, wherein the reporter molecule is a dye.
34. (Previously Presented) The method of claim 33, wherein the dye is a fluorescent dye.
35. (Previously Presented) The method of claim 34, wherein the fluorescent dye replaces a nucleic acid residue or is inserted between two nucleic acid residues of the signaling aptamer.
36. (Previously Presented) The method of claim 34, wherein the fluorescent dye is acridine or fluoresceine.
37. (Previously Presented) The method of claim 29, wherein the signaling aptamer comprises RNA, DNA, modified RNA, or modified DNA.
38. (Previously Presented) The method of claim 29, wherein the signaling aptamer is an anti-adenosine signaling aptamer.
39. (Previously Presented) The method of claim 38, wherein the anti-adenosine signaling aptamer is ATP-R-Ac13 or DFL7-8.
40. (Previously Presented) The method of claim 35, wherein the fluorescent dye replaces a nucleic acid residue adjacent to a functional nucleic acid residue of the aptamer or is inserted between the functional nucleic acid residue and the nucleic acid residue adjacent to the functional nucleic acid residue.
41. (Previously Presented) The method of claim 29, wherein the signaling aptamer is in solution.
42. (Previously Presented) The method of claim 29, wherein the signaling aptamer is immobilized on a solid support.
43. (Previously Presented) The method of claim 42, wherein the solid support is a chip.